APPENDIX C

BMP COMPLIANCE FOR FANNY PROJECT AREA TIMBER SALE

BMP Compliance for Fanny Timber Sale

33 CFR 323.4(a)(6) [States that] Construction or maintenance of farm roads, forest roads, or temporary roads for moving mining equipment, where such roads are constructed and maintained in accordance with best management practices (BMPs) to assure that flow and circulation patterns and chemical and biological characteristics of waters of the United States are not impaired, that the reach of the waters of the United States is not reduced, and that any adverse effect on the aquatic environment will be otherwise minimized. These BMPs which must be applied to satisfy this provision shall include those detailed BMPs described in the state's approved program description pursuant to the requirements of 40 CFR 233.22(i), and shall also include the following baseline provisions: **(NOTE: Items in bold print are engineering design guidelines or standard operating procedures as related to each BMP.)**

(i) Permanent roads (for farming or forestry activities), temporary access roads (for mining, forestry, or farm purposes) and skid trails (for logging) in waters of the United States shall be held to the minimum feasible number, width, and total length consistent with the purpose of specific farming, silvicultural or mining operations, and local topographic and climatic conditions;

> **Reduce steep (greater than 10%) grades where possible. Consider seasonal or annual road and area closures to protect roads. Reference FSH 7709.56 Road Preconstruction Handbook for all design standards. Road Management Objectives, including road standards, maintenance level and travel management, are documented and approved for all roads. Minimize new construction. New roads are constructed to the minimum standard necessary for the type of use in accordance with FSH 7709.56. New road construction is closed following timber management activity unless documented and approved Road Management Objective states otherwise.**

(ii) All roads, temporary or permanent, shall be located sufficiently far from streams or other water bodies (except for portions of such roads which must cross water bodies) to minimize discharges of dredged or fill material into waters of the United States;

> **Relocate roads out of bottoms to minimize impact in intermittent draws. Outlets of drainage devices provide for dispersion of water to dissipate flow. Catchment basins are of adequate size and location to prevent soil movement off the site. Consult with hydrologist and fisheries biologist to develop the proper structure required for the stream characteristics, flow volume, soil type and drainage area. Placement of the structure shall be in accordance with State and Federal laws regarding construction in and near waterways, including placement of fill and measures to control sedimentation. Maintain a vegetative buffer as identified by Vbfr Equation between streams and parallel roads sufficient enough to eliminate movement of soil to the stream. Catchment basins are used where terrain permits. Fill slopes and other**

disturbed areas are revegetated. Road construction in non-wetland meadows is in accordance with the Forest Plan.

(iii) The road fill shall be bridged, culverted, or otherwise designed to prevent the restriction of expected flood flows:

Drainage devices are designed and installed in accordance with 33CFR323.4(a)(6) and applicable State BMPs and guidelines set forth in FSH 7709.56 Road Preconstruction Handbook and FSH 7709.56b Drainage Structures Handbook. Surface drainage devices include culverts, rolling dips and water diversion structures. Culverts and water diversion structures are generally considered for use on grades steeper than 10%. Culvert size and spacing are in accordance with the above mentioned Handbooks. Water diversion structures are spaced from 150' to 200' apart as needed on continuous grades. Culverts and stream crossings will be stabilized to the 100-year event. Rolling dips are spaced from 200' to 500' apart, on continuous grades without breaks, depending on soil type and road grade and may be plated with rocky material to protect the soil. Outlets of drainage devices provide for dispersion of water to dissipate flow. Catchment basins are of adequate size and location to prevent soil movement off the site. Subsurface drainage devices are in accordance with Handbook references. Aggregate surfaced roads shall be routinely maintained. Ditches that have revegetated may be bladed if they are not functioning as designed. Culverts and other drainage devices shall be cleaned of debris to ensure their function is maintained. Consult with hydrologist and fisheries biologist to develop the proper structure required for the stream characteristics, flow volume, soil type and drainage area. Placement of the structure shall be in accordance with State and Federal laws regarding construction in and near waterways, including placement of fill and measures to control sedimentation. Routinely maintain culverts to ensure unrestricted flow.

(iv) The fill shall be properly stabilized and maintained during and following construction to prevent erosion;

Rocky fills and geotextiles are used in marshy, wet areas when avoidance is not possible. Highly erodable soils, steep grades and flat areas may be protected by placement of aggregate on the roadbed. Depth of aggregate may vary depending on type of soil but 4" is generally the minimum depth applied to ensure proper bearing strength and soil protection. Where crossings of intermittent drainages, draws and valleys are proposed, 1' to 2' of rocky material may be used to protect the soil. Cut and fill slopes are seeded as soon as possible following completion of road template. Natural revegetation also occurs to supplement specified seeding. Aggregate surfaced roads shall be routinely maintained. Ditches that have revegetated may be bladed if they are not functioning as designed. Culverts and other drainage devices shall be cleaned of debris to ensure their function is maintained.

Ensure fill slope protection with riprap, gabions, prompt seeding of slopes and/or other methods approved by the hydrologist, fisheries biologist and soil scientist. Placement of the structure shall be in accordance with State and Federal laws regarding construction in and near waterways, including placement of fill and measures to control sedimentation. Immediately repair damaged or eroded fill slopes.

(v) Discharges of dredged or fill material into waters of the United States to construct a road fill shall be made in a manner that minimizes the encroachment of trucks, tractors, bulldozers, or other heavy equipment within waters of the United States (including adjacent wetlands) that lie outside the lateral boundaries of the fill itself;

Placement of the structure shall be in accordance with State and Federal laws regarding construction in and near waterways, including placement of fill and measures to control sedimentation. Maintain a vegetative buffer as identified by Vbfr Equation between streams and parallel roads sufficient enough to eliminate movement of soil to the stream. Catchment basins are used where terrain permits. Fill slopes and other disturbed areas are revegetated. Construction equipment will not operate in vegetative buffer except as necessary to construct fills. Discharge of fill or dredged material into waters of the United States will be performed with minimal encroachment of construction equipment outside the fill itself. Minimize disturbance of vegetation in waters of the United States during construction and maintenance of roads.

(vi) In designing, constructing, and maintaining roads, vegetative disturbance in the waters of the United States shall be kept to a minimum;

Cut and fill slopes are seeded as soon as possible following completion of road template. Natural revegetation also occurs to supplement specified seeding. Aggregate surfaced roads shall be routinely maintained. Ditches that have revegetated may be bladed if they are not functioning as designed. Culverts and other drainage devices shall be cleaned of debris to ensure their function is maintained. Consult with hydrologist and fisheries biologist to develop the proper structure required for the stream characteristics, flow volume, soil type and drainage area. Placement of the structure shall be in accordance with State and Federal laws regarding construction in and near waterways, including placement of fill and measures to control sedimentation. Routinely maintain culverts to ensure unrestricted flow. Construction equipment will not operate in vegetative buffer except as necessary to construct fills. Minimize disturbance of vegetation in waters of the United States during construction and maintenance of roads.

(vii) The design, construction and maintenance of the road crossing shall not disrupt the migration or other movement of those species of aquatic life inhabiting the water body;

Placement of the structure shall be in accordance with State and Federal laws regarding construction in and near waterways, including placement of fill and measures to control sedimentation.

(viii) Borrow material shall be taken from upland sources whenever feasible;

Borrow material needed for road construction will be taken from upland areas. Also, discharge of waste material from maintenance of drainage structures shall be placed at upland sites.

(ix) The discharge shall not take, or jeopardize the continued existence of, a threatened or endangered species as defined under the Endangered Species Act, or adversely modify or destroy the critical habitat of such species;

The presence of Threatened and Endangered Species and their habitat is identified in Project Area analysis. Seasonal and/or annual road closures for wildlife considerations are identified in Travel Management documentation.

(x) Discharges into breeding and nesting areas for migratory waterfowl, spawning areas, and wetlands shall be avoided if practical alternatives exist;

Marshy, wet areas are avoided where possible. Rocky fills and geotextiles are used in marshy, wet areas when avoidance is not possible. Placement of the structure shall be in accordance with State and Federal laws regarding construction in and near waterways, including placement of fill and measures to control sedimentation. Immediately repair damaged or eroded fill slopes. Maintain a vegetative buffer as identified by Vbfr Equation between streams and parallel roads sufficient enough to eliminate movement of soil to the stream. Catchment basins are used where terrain permits. Fill slopes and other disturbed areas are revegetated. Road construction in non-wetland meadows is in accordance with the Forest Plan.

(xi) The discharge shall not be located in the proximity of a public water supply intake;

There are no municipal watersheds in the Fanny Project Area.

(xii) The discharge shall not occur in areas of concentrated shellfish production;

There are no areas of concentrated shellfish production on the Black Hills National Forest.

(xiii) The discharge shall not occur in a component of the National Wild and Scenic River System;

There are no components of the National Wild and Scenic River System on the Black Hills National Forest.

(xiv) The discharge of material shall consist of suitable material free from toxic pollutants in toxic amounts;

Materials to be used will be manufactured from non-contaminated sources.

(xv) All temporary fills shall be removed in their entirety and the area returned to its original elevation.

Under Public Works, compliance will be enforced by use of FAR clause 52.223-2 by the authorized contract personnel. Under timber sales, compliance will be ensured by enforcement of timber sale contract clauses (such as B6.5 and C6.62#) by designated timber sale contract personnel. All temporary structures (including fills) to be removed as part of specified work will be enforced from specifications and project notes contained and referenced in the contract.

SPECIFIC CONCERNS

Following are existing conditions that include soil and water problems identified during road inventory and field review by a Hydrologist and a Transportation/Road Engineer:

The descriptions of areas of concern on the following listed roads all violate in common BMP (ii). Violation of other BMPs will be listed under each specific road if applicable. These roads may not be utilized with the timber sale, depending on the alternative selected.

NFSR 117.4F
Area of Concern: Segements of existing road crosses drainage in numerous locations.

Proposed Corrective Action: Close road to all but occasional administrative action. Consider relocating and recosntruction of road prism in affected areas to reduce the number of crossings from drainage. Improve crossings sites with crushed aggregate to decrease sedimentation.

NFSR 117.4J
Area of Concern: Segment of existing road is located in a narrow drainage that had become rutted do to poor location and drainage.

Proposed Corrective Action: Relocate segment of existing road from drainage. Add additional rolling dips where necessary to decrease sedimentation and erosion. Relocate existing closure gate to the beginning termini to limit access Limit access to administrative use.

NFSR 117.4G
Area of Concern: Roadway follows bottom of drainage.

Proposed Corrective Action: Consider relocating and recosntruction of road prism in affected areas to reduce the number of crossings from drainage. Improve crossings sites with crushed aggregate to decrease sedimentation.

NFSR 280.2A
Area of Concern: Segements of existing road cross ephemeral drainage in numerous locations.

Proposed Corrective Action: Consider relocating and recosntruction of road prism in affected areas to reduce the number of crossings from drainage. Improve crossings sites with crushed aggregate to decrease sedimentation.

NFSR 281.1E
Area of Concern: Segements of existing road cross ephemeral drainage in numerous locations.

Proposed Corrective Action: Close road to all but occasional administrative action. Consider relocating and recosntruction of road prism in affected areas to reduce the number of crossings from drainage. Improve crossings sites with crushed aggregate to decrease sedimentation.

NFSR 117.5R, 280.2H, 280.2I, 280.2J, 280.2X, 281.1G, 281.H and 281.1V
Area of Concern: These roads show signs of rutting and insufficient drainage.

Proposed Corrective Action: Perform maintenance to remove ruts and improve existing rolling dips. Add new rolling dips as needed to reduce the movement of sediment during runoff. Routine maintenance can be expected within five years.

Maintenance on all roads used for timber harvest is the responsibility of the Purchaser for the life of the Timber Sale Contract. Maintenance includes cleaning out silt from sediment collecting ponds and depositing it in upland locations, keeping all drainage structures clear and functional, eliminating erosion of cut and fill slope and roadway soils, maintaining vegetative buffers, encouraging revegetation, and blading road surfaces. Maintenance activities will not contribute to degradation of waters of the United States.

Maintenance of the roads, after the Timber Sale will be the responsibility of the Forest Service and will be performed when needed or with grid maintenance every five years, whichever comes first.